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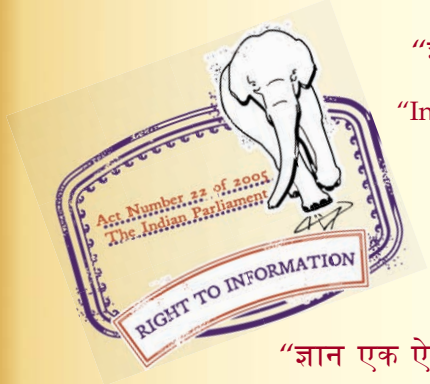
IS 195 (2005): Fireclay Mortar for Laying Fireclay Refractory Bricks [MTD 15: Refractories]



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"Knowledge is such a treasure which cannot be stolen"

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(चौथा पुनरीक्षण)

Indian Standard

FIRECLAY MORTAR FOR LAYING FIRECLAY REFRACTORY BRICKS — SPECIFICATION

(Fourth Revision)

ICS 81.080

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2005

Price Group 1

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Refractories Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1950, and subsequently revised in 1963 and 1991. In this revision, following modifications have been made:

a) Reference clause has been added;

b) Chemical composition is shifted to separate table;

c) Physical requirement have been modified; and

d) Standard marking clause has been added.

For determining fineness of fireclay mortar the aperture sizes are based on IS 460 (Part 2) : 1985 'Test sieves: Part 2 Perforated plate test sieves (*third revision*)'. Where these sieves are not available other equivalent standard for sieves may be used.

Fireclay mortar is mainly a suitable mixture of plastic fireclay grog (calcined fireclay or broken fireclay refractories). Fireclay mortar specified in this standard is used for laying fireclay refractory bricks conforming to:

IS No.	*Title*
6 : 1983	Moderate heat duty fireclay refractories, Group A (*fourth revision*)
8 : 1983	High heat duty fireclay refractories (*fifth revision*)
483 : 1972	Fireclay refractories for oil-fired boiler furnaces on naval ships (*first revision*)
2043 : 1984	Siliceous fireclay refractories (*first revision*)

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FIRECLAY MORTAR FOR LAYING FIRECLAY REFRACTORY BRICKS — SPECIFICATION

(Fourth Revision)

1 SCOPE

This standard covers the requirements for mortar used for laying fireclay refractories.

2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1387 : 1993	General requirements for the supply of metallurgical materials (*second revision*)
1527 : 1972	Methods for chemical analysis of high silica refractory materials (*first revision*)
1528	Methods of sampling and physical test for refractory materials:
(Part 1) : 1980	Determination of pyrometric cone equivalent (PCE) or softening point (*second revision*)
(Part 7) : 1974	Methods of sampling and criteria for conformity (*first revision*)
(Part 14) : 1974	Determination of sieve analysis (*first revision*)

3 SUPPLY OF MATERIAL

3.1 General requirements relating to the supply of fireclay mortar shall be as laid down in IS 1387.

3.2 The material shall be ground evenly and shall be of such quality and plasticity as would enable it to be spread satisfactorily with a trowel when tempered with an adequate amount of water.

4 SAMPLING

Representative samples shall be drawn according to the scheme of sampling given in IS 1528 (Part 7).

5 CHEMICAL COMPOSITION

The chemical composition of different grades of fireclay mortar with respect to Al_2O_3 and Fe_2O_3 content when tested in accordance with the method given in IS 1527 shall be as given in Table 1.

6 PHYSICAL REQUIREMENTS

6.1 Drying and Firing Shrinkage

6.1.1 The drying and firing shrinkage of different types of fireclay mortar shall be as given in Table 2.

6.1.2 Drying and firing shrinkage shall be measured on hand moulded briquettes made after thorough mixing of mortar with 10-20 percent of water.

6.1.3 The size of the briquettes should be 160 mm × 40 mm × 40 mm. The same briquettes as for firing test, may be used subsequently.

6.2 Fineness

6.2.1 The fineness of different grades of fireclay mortar shall be as given in Table 2.

6.2.2 No particle of fireclay mortar shall be so large as to be retained on IS sieve 1.6 mm.

6.3 Refractoriness

Fireclay mortar when tested in accordance with the method given in IS 1528 (Part 1) for pyrometric cone equivalent shall conform to the values given in Table 1.

7 PACKING

Unless otherwise specified, the material shall be supplied in gunny bags each containing 50 kg fireclay mortar.

8 MARKING

8.1 The containers shall be clearly marked with the manufacturer's name or trade-mark, and grade and type of the material.

8.2 BIS Certification Marking

The containers may also be marked with the Standard Mark.

8.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Table 1 Chemical Composition

(*Clauses* 5 *and* 6.3)

Sl No.	Characteristic	Requirement		Method of Test, Ref to IS No.
		Grade 1	Grade 2	
(1)	(2)	(3)	(4)	(5)
i)	Al_2O_3, percent, *Min*	37	30	1527
ii)	Fe_2O_3, percent, *Max*	2	2.5	1527

Table 2 Physical Requirements

(*Clauses* 6.1.1 *and* 6.2.1)

Sl No.	Characteristic	Requirement		Method of Test, Ref to IS No.
		Grade 1	Grade 2	
(1)	(2)	(3)	(4)	(5)
i)	Pyrometric cone equivalent (Orton cone), Standard cone No., *Min*	31	29	1528 (Part 1)
ii)	Drying shrinkage at 110°C percent, *Max*	1.5	3	–
iii)	Firing shrinkage at temperature, percent, *Max*	0.5 (at 1 400°C for 2 h)	3.0 (at 1 350°C for 2 h)	–
iv)	95 percent passing through IS sieve, micron, *Min*	150	842	1528 (Part 14)

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. MTD 15 (4454).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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